NASA Range Safety Program
2006 Annual Report

STATUS REPORTS
KENNEDY SPACE CENTER (KSC)

The Kennedy Space Center Range Safety Representative is tasked with implementing NASA policy and keeping the Agency Range Safety Manager informed of all activities related to range safety. Over the course of the past year, the Range Safety Representative supported a myriad of range safety activities, ranging from pre-launch policy interpretation and guidance to providing on-console support during launch campaigns.

Constellation Program

For the Constellation Program, the Kennedy Space Center Range Safety Representative was involved in providing a top-level tailored version of NPR 8715.5 for use in driving architectural as well as system level requirements. In addition, a number of Constellation documents such as those listed below were reviewed:

- Constellation Architecture Requirements Document
- System Requirements Document
- Safety, Reliability, and Quality Assurance Plan

The resulting support will capture applicable Range Safety requirements for the program to implement.

The Range Safety Representative represented the Agency on the Crew Exploration Vehicle Smart Buyer team. This effort involved providing the Constellation Program with an in-house design using subject matter experts across the Agency to assist the program in the conduct of proposal evaluations. The Range Safety Representative also provided continued support to the Launch Constellation Range Safety Panel.

Space Shuttle Program

For the Space Shuttle program, the Range Safety Representative was involved in the development and publication of a Kennedy Space Center Launch and Landing Range Safety Risk Management Plan as well as a Landing Implementation Plan. These plans detail how Kennedy Space Center and the Space Shuttle program intend to meet the individual and collective risk criteria found in NPR 8715.5. Launch and entry risks estimates were evaluated for STS-121 and STS-115 and both sets of results were well within NPR criteria.

The Range Safety Representative also provided continued support to the Shuttle Range Safety Panel and supported STS-115, STS-121 and STS-116 launches on console in the Range Operations Control Center.

Launch Services Program

For the launch services program, the Range Safety Representative supported a number of NASA expendable launch vehicle campaigns, including Calipso Cloudsat and Pluto New Horizons. This effort involved attending all the NASA and Air Force Safety readiness reviews and ensuring NPR requirements were being met during the respective launch countdowns.

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Agency Activities

For Agency activities, the Range Safety Representative served as NASA point of contact to the Range Safety Group and supported several committees charged with developing or rewriting nationwide standards on a number of important range safety issues. These topics included developing reusable launch vehicle and uninhabited aerial vehicle requirements and a rewrite of RCC 321, *Common Risk Criteria for National Test Ranges* for risk evaluation and approval.

The Range Safety Representative also led an Agency-wide team through initial planning of a NASA common flight analysis tool development activity. This activity takes a strategic approach by leveraging the talents of individuals and tools within and outside the Agency. It is expected that this effort will result in the ability to share resources in a way that creates greater technical in-house capability across the Agency.

Other Range Safety Activities

Other Range Safety activities that the Range Safety Officer was involved in included the following:

- Documenting approval of range safety non-conformances/variances for all applicable NASA launches
- Publishing Range Safety Variance and Spaceflight Risk Assessment Board processes for Kennedy Space Center, processes describing the steps taken should risk estimates be higher than acceptable per NPR criteria
- Supporting discussions regarding flight termination system frequency migration plans and how they affect future NASA missions
- Supporting discussions relative to meeting secure systems requirements found in NPR 2810, *Security of Information Technology*
- Assisting the Agency Range Safety Manager in developing a Range Safety Operations course for NASA, the last in a series of NASA Safety Training Center taught courses
- Tracking and coordinating audit responses and corrective actions generated from the Wallops Flight Facility and Dryden Flight Research Center Range Safety Assessments conducted in 2005
- Providing Toxic and Distant Focus Overpressure risk analysis support to Wallops Flight Facility for the TAC SAT-2 Minotaur launch

The past year was a challenge in supporting a number of launch and entry campaigns, providing critical early support to the Constellation Program, and continuing to ensure Kennedy Space Center safely implements NASA Range Safety requirements. The coming year promises to be at least as busy and the Kennedy Space Center Range Safety Representative will continue to provide critical support whenever called upon by NASA programs or to address issues that may arise.